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**REMARKS**

Claims 8-27 are all the claims pending in the application. Claims 21-27 are added above to further define the invention. Claims 8-20 stand rejected on prior art grounds. Applicants respectfully traverse these rejections based on the following discussion.

**I. The Prior Art Rejections**

Claims 8-11, 13-18 and 20 stand rejected under 35 U.S.C. §102(c) as being anticipated by Bronner et al (hereinafter "Bronner"). Claims 12 and 19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Bronner taken with Kenney (5,710,080). Claims 15-18 and 20 are further rejected under 35 U.S.C. §103(a) as being unpatentable over Bronner taken with Hsiao (6,291,286). Applicants respectfully traverse these rejections based on the following discussion.

**A. The Rejection Based on Bronner**

Applicants respectfully traverse this rejection principally because the collar 204 in Bronner does not prevent the strap 250 from making contact with the sidewall of the trench, while in the claimed invention the collar separates the lip strap from the wall of the trench.

More specifically, as shown in Figures 2E and 2F of Bronner, when the collar 204 is recessed, a portion of the wall of the trench is exposed such that the strap material 250 comes in contact with the wall of the trench. To the contrary, as shown for example in Applicants' Figure 5, the collar 12 is recessed such that the wall of the trench is still protected. Therefore, when the lip strap 26 is formed, the collar 12 still protects the wall of the trench. This is clearly defined by independent claims 8 and 15 (and newly added claim 21) which state that the "collar separates said lip strap from said wall of said trench."

Column 4, line 54-column 5, line 11 of Bronner explains that a selective etching process is used to produce a gap 240 between the insulating material 220 and the trench wall. A specific etch is used to reduce the collar 204 down to a desired depth. Bronner

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performs such actions to precisely control the threshold voltage by minimizing the strap depth. Then, the conductor 250 which forms the strap completely fills the gap 240 after which the conductive material 250 is removed (except in the gap 240) so that the conductive material forms only the strap.

To the contrary, as shown in Applicants' Figure 3, the collar is selectively recessed such that a portion of the collar remains along the wall of the trench. This gap is labeled 24 in Figure 3. Then, when the silicon strap 26 is formed, it does not make contact with the sidewall of the trench because the collar 12 continues to protect the wall of the trench. Therefore, with the inventive method, undesirable diffusion from the strap 26 into the silicon 10 is avoided.

Thus, as shown above, independent claims 8 and 15 (and newly added independent claim 21) are not taught or suggested by Bronner because Bronner does not teach or suggest that the "collar separates said lip strap from said wall of said trench." Therefore, Applicants respectfully submit that independent claims 8 and 15 (and new independent claim 21) are patentable over Bronner. Further, dependent claims 9-11, 13, 14, 16-18, and 20 are similarly patentable over Bronner not only virtue of their dependency from a patentable independent claim, but also by virtue of the additional features of the invention they define. In view the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

#### **B. The Rejection Based on Bronner et al. taken with Kenney**

As discussed above, Bronner does not teach or suggest the invention defined by independent claims 1 and 15. The Office Action refers to Kenney as disclosing silicon oxide and silicon nitride as the thin node dielectric layer and does not propose that Kenney teaches that the collar should separate the lip strap from the sidewall of the trench. Further, Applicants submit that Kenney does not teach or suggest this feature because Kenney only discloses a planar strap 42 and does not disclose any form of lip strap or other type of strap that could have the possibility of contacting the sidewall of the trench.

More specifically, as shown in Figure 1B, 4B, and 5B, the polysilicon strap 42 in Kenney is simply a planar conductive material and does not relate to the lip straps of the

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inventive structure. Therefore, it is not logical that Kenney could teach or suggest any feature that would protect the lip strap from contacting the sidewall. Thus, it is Applicants position that the Office Action does not propose that Kenney teaches the feature discussed above and that Kenney does not teach such a feature.

Thus, Applicants submit that even if one ordinarily skilled in the art would have combined Bronner with Kenney, the proposed combination still would not teach or suggest a method where the "collar separates said lip strap from said wall of said trench" as defined by independent claims 8 and 15. Therefore, independent claims 1 and 15 would still be patentable over any combination of Bronner and Kenney. Further, dependent claims 12 and 19 are similarly patentable, not only by virtue of their dependency from patentable independent claims 8 and 15, but also because of the additional features of the invention they define. In view the forgoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

### **C. The Rejection Based on Bronner et al. taken with Hsiao**

The Office Action refers to Hsiao as teaching forming isolation regions both before and after the lip strap is formed. However, once again, the Office Action does not propose that Hsiao teaches or suggests that the collar should separate the lip strap from the wall of the trench, as defined by independent claims 8 and 15. Further, as shown below, Hsiao clearly does not teach or suggest such features.

As shown in Figures 3, 4, and 6, the strap 58 in Hsiao is always in direct contact with the sidewall of the trench. Indeed, Hsiao is substantially identical to Bronner in this regard in that both patents recess the collar to expose the upper portion of the trench to allow the strap to directly contact the sidewall of the trench. As explained in detail above, the claimed invention is substantially different and provides a method whereby the collar is recessed only to a certain point such that the collar still separates the lip strap from the wall of the trench (as shown in Applicants' Figure 4).

Thus, Applicants submit that independent claims 8 and 15 would still be patentable over any combination of Bronner and Hsiao because neither reference teaches or suggests that the "collar separates said lip strap from said wall of said trench," as defined by independent claims 8 and 15. Further, dependent claims 16-18 and 20 are

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similarly patentable, both because of their dependency from patentable independent claims 15 and because of the additional features they define. In view the forgoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

## II. Formal Matters and Conclusion

With respect to the objections to the specification and claims, the specification has been amended as suggested in the Office Action and minor typographical errors in the claims have been corrected. These typographical error corrections are not intended to broaden or narrow the claims in any way. In view the forgoing, the Examiner is respectfully requested to reconsider and withdraw the objections to the claims and specification.

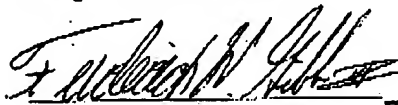
Thus, Applicants submit that claims 8-27, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0458.

Respectfully submitted,

Dated: 7/9/03

  
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